CONSOLIDATED INFORMATION TECHNOLOGY SERVICES
TASK ASSIGNMENT (TA)

1. **TITLE:** (D305) AEROTHERMODYNAMICS BRANCH COMPUTER SYSTEM ADMINISTRATION AND HYPERSONIC WIND TUNNEL DATA REDUCTION

TA No:	RBH001-Rev9		
Task Area Monitor:		**Alternate Task Area Monitor:**	
NASA POC:	None	**Software Control Class:**	Low Control
Type of Task:	Non-Recurring Task		

2. BACKGROUND

The Aerothermodynamics Branch (AB) performs experimental aerodynamics/ aeroheating/ fluid dynamic research via: (1) three hypersonic wind tunnels (namely, 20-Inch Mach 6 Air (bldg 1247D), 20-Inch Mach 6 CF4 (bldg 1275) and 31-Inch Mach 10 Air (bldg1251A)), referred to as the Langley Aerothermodynamics Laboratory (LAL) and, (2) computational fluid dynamics (CFD) by branch members located in building 1251/1251A. Thus the AB has computer equipment as specified in Exhibit A at each facility for data acquisition and reduction and additional computer equipment also specified in Exhibit A at building 1251 to support both computationalists and experimentalists. On-site system administration for hardware and software is required to provide back-ups and maintain resource availability and network security for NASA personnel, contractors, and grantees, within and outside the Langley network domain.

3. OBJECTIVE

The objective of this task assignment is to provide on-site data acquisition and reduction support at each wind tunnel in the LAL and on-site system administration support for both the wind tunnel computer equipment and the computer systems in building 1251 used by the Aerothermodynamics Branch.

4. GENERAL IT SUPPORT SERVICES

Services Specified Through Exhibit A:
Refer to Exhibit A, Inventory of Equipment and Software (attached), that has been completed to define the required General IT Support Services.

The services of System and IT Security Administration shall be provided for those systems for which "System and IT Security Administration Required" is checked in Exhibit A. The level of security shall be consistent with the information category identified by the code checked for each such system (see NPG 2810.1). If these services are not required for the system as a whole, they shall be provided for any isolated processors where the information category code is entered in the SSA column.

Any system software, application software, or database software that is licensed to run on a particular item of equipment is entered in the respective column for that item. Software that does not require a license is also included if it is relevant to any of the required services.

The services of System Administration (SA), Hardware Maintenance (HM), System Software Management (SSM), Applications Management (AM), and Database Administration (DBA), are required for the items of equipment or software that are checked in the respective columns of Exhibit A.

Customer Support and IT Consultation and Training:
The Contractor shall provide the basic level of Customer Support and IT Consultation and Training given in Section 4.7 and Section 4.8 clauses a) and c) of the SOW for all General IT Support Services.

Exceptions and Additional Requirements:
For systems that are covered under vendor or third-party hardware or software maintenance contracts, the Contractor shall contact vendor, notify them of problems and seek resolution (in the event of problems), and obtain quotes for replacement parts or upgrades and provide them to the LaRC point of contact for procurement.

The Contractor shall assist the Government in coordination of construction of new computer facilities, relocation of computer equipment, and property control of computer equipment.

Contractor personnel will be located on-site in the AB office area (building 1251) and at each of the three hypersonic wind tunnels of the LAL (bldgs 1247D, 1275, and 1251A). Computer systems will be set up to operate 24 hrs. per day, 7 days per week. Operations outside of normal working hours will be monitored and problems will be reported to the Technical Monitor within 2 hours of the start of the next business day.

General IT Support Services Performance Metrics

Performance Standard: Assigned activities are accomplished satisfactorily and within the pre-determined schedule to permit 1) uninterrupted support of the computer systems in AB, and 2) application of newly developed/modified software and operating system upgrades.

Performance Metrics:

- Exceeds: All assigned activities are accomplished satisfactorily on or ahead of the pre-determined schedule. Suggestions are made and acted on that lead to advancements towards the goals of the branch.
- Meets: Any deficiencies or slippage in one or more activities are offset by improvements or gains in other activities.
- Fails: Deficiencies or slippage in assigned activities have had a detrimental effect on the objectives of the operation of the branch.

Performance Standard: Performance Standard: Assigned activities are accomplished satisfactorily and within the pre-determined schedule to permit 1) uninterrupted support of

data acquisition set-up, operations, and reduction for all facilities in LAL, and 2) application of newly developed/modified testing techniques

Performance Metrics:

Exceeds: All assigned activities are accomplished satisfactorily on or ahead of the pre-determined schedule. Suggestions are made and acted on that lead to advancements towards the goals of the tests.

Meets: Any deficiencies or slippage in one or more activities are offset by improvements or gains in other activities.

Fails: Deficiencies or slippage in assigned activities have had a detrimental effect on the objectives of the operation of the LAL.

5. SYSTEM AND APPLICATION DEVELOPMENT SERVICES

None required.

6. WORK-AREA SPECIFIC SERVICES

Work Area Title: Data Reduction Programming and Analysis Support for Langley Aerothermodynamics Laboratory

LaRC Manager:

Work Area Description: Data reduction programming and analysis support is required by the Langley Aerothermodynamics Laboratory (LAL), comprised of the 20-Inch Mach 6 Tunnel, 20-Inch Mach 6 CF4 Tunnel, and the 31-Inch Mach 10 Tunnel including the 15-Inch Mach 6 leg. Research interests include screening, optimizing, and benchmarking the aerodynamics and aeroheating performance of blunt, moderately blunt, and slender configurations at hypersonic conditions. Testing techniques can be broken into two distinct categories: video based systems and non-video based systems. A significant portion of this support includes the development of utility and application interfaces such as Graphical User Interfaces (GUI) code or control software, using COTS packages such LabView. The development may also include data acquisition software and translators for information exchange between heterogeneous platforms and other IT intensive applications. The extent of the application management support for the existing and newly developed applications may range from installation only to full support involving additional software or script development, code enhancements, execution of the application, generation of required products, and consultation. Operational support for data acquisition/ reduction/ analysis for simultaneous operation of all facilities within the Aerothermodynamic Facilities Complex is required. Requirements specific to this work area include:

- Algorithm and code development in computer languages including but not limited, to FORTRAN and Rocky Mountain Basic
- Application management of legacy codes
- Thorough understanding of force and moment measurement and data acquisition and reduction equations/methods with ability to identify operational problems and propose solutions.
- Preparation of test-specific data acquisition input files, execution of data acquisition software/hardware, analysis and presentation applications based on Government's test

and data presentation requirements, and the delivery of products
- Performing data archival of each test, and, when specifically required, data distribution
- Create and maintain LabVIEW programs for data reduction, new thermographic phosphor systems, and IR camera system. Programs shall be written so each can be utilized in all four Langley Aerothermodynamic Labs (LAL).

Work Area Requirements: See Metrics Below.

7. Exhibit A

Exhibit A

8. SPECIAL SECURITY REQUIREMENTS

Secret security clearance is required. Except where specifically required and approved by the Government, data release by the contractor to third parties is strictly prohibited.

9. SOFTWARE ENGINEERING PROCESS REQUIREMENTS

The Software Control Class requirements of this TA are determined to be "Low", Therefore, the software acquisition & control process described in the ConITS master TA SL001 shall apply to this TA.

10. JOINT REVIEW SCHEDULE

There will be a joint review of the work of this task at meetings to be held bi-annually on the first Wednesday of the second and fourth quarters. The following persons or their alternates are required to attend: NASA technical monitor and Contractor personnel assigned to task. Technical performance, timeliness, and cost will be discussed. The contractor shall maintain minutes; and at the beginning of each meeting the minutes of the previous meeting will be reviewed.

11. PERIOD OF PERFORMANCE

This TA is effective from 02/01/01 to 04/27/09

12. TECHNICAL PERFORMANCE RATING

In evaluating Technical Performance, quality and timeliness shall be rated as follows:

Quality: 60% Timeliness: 40%

13. RESPONSE REQUIREMENTS

Within two weeks from receipt of this task assignment, submit to the Contracting Officer's Representative, an original and two copies of a Task Plan. This Task Plan shall address the

contractor's lead personnel; specific work plans; and the associated estimated labor hours, cost, and schedule. The task plan shall include the delivery or schedule for delivery of: the Software Project Management Plan (SPMP), Maintenance Plan, and Operations Plan, when they are required. Include a signature block for concurrence by the Contract Manager and approval by the Contracting Officer's Representative.

14. FUNDING INFORMATION

Funding last submitted on 08/06/2008.

15. MILESTONES

None required.

16. DELIVERABLES

None required.

17. FILE ATTACHMENTS

None.